THE VETERINARY RECORD

A Weekly Journal for the Profession.

Edited by WILLIAM HUNTING, F.R.C.V.S.

No. 934. JUNE 2, 1906. VOL. XVIII

MR. A. C. COPE.

The funeral of the late Chief Veterinary Officer of the Board of Agriculture took place at Brompton Cemetery on Thursday. In addition to the friends and relatives present we noticed Mr. Anstruther, Assistant Secretary of the Board of Agriculture; Sir John M'Fadyean, Principal of the Royal Veterinary College; Mr. Stewart Stockman, who succeeded Mr. Cope; Mr. W. W. Smart, C.I.S.O., who represented the Veterinary Inspectors, and is, we suppose, the oldest of Mr. Cope's colleagues. There were also present Prof. Penberthy, Dr. McI. McCall, Mr. W. Hunting, and other members of the veterinary profession.

When Mr. Cope retired from his position at the Board of Agriculture his health was precarious, but it was hoped that he would soon regain his strength and energy. For a time he improved, but recently he was subject to a relapse, and succumbed on Tuesday, the 29th. Owing to the fact that his only son was under orders to sail for India on Friday the funeral arrangements were unavoidably hurried.

Mr. Cope was appointed to the Veterinary Department in 1873, as Assistant to Sir George Brown, and retired in 1905, so that he served the Government for 32 years. At the time of his appointment he was in practice in Bayswater but had, under Professor Simonds, been actively engaged in suppressing the cattle plague of 1865-6. He was also for some years engaged in private practice in the West of England before coming to Bayswater.

Mr. Cope's experience of the contagious diseases of animals in this kingdom is unique. He saw Cattle-plague suppressed, Pleuro-pneumonia stamped out, and Foot-and-mouth disease repeatedly re-introduced but never allowed to spread, and finally exterminated. Under his direction Rabies was rendered non-existent, but he was not privileged to see a successful end to the attempts to control Swine-fever.

The country owes a debt to Mr. Cope which it never quite acknowledged. The Chief Veterinary adviser to the British Government is an officer on whom devolves very far-reaching decisions. His advice guides the authorities in actions which affect shipping, sea-port towns, railways, markets, and the movement of animals, and above all it affects the whole course of agriculture. We said when Mr. Cope retired, and we say again, that some little honour might have been conferred upon him which would have publicly recognised the importance of his office and the able manner in which he carried out his duties.

The veterinary profession has done justice to Mr. Cope. He has acted as Vice-President and President of the Royal College of Veterinary Surgeons, and was a Member of Council when he died. He was a Governor of the Royal Veterinary College. He has for years been connected with the leading Agricultural Societies, and many old friends will miss him at the "Royal," the "Bath and West," and the "Yorkshire."

Mr. Cope was a very handsome man, with a dignified appearance and courteous, genial manners. In April of last year he was the recipient of a presentation from his colleagues and staff at the Board of Agriculture. In making the presentation Mr. Jas. F. Simpson said: "that no public servant ever left a department better respected and with kindlier wishes from those to whom he is known."

Another speaker who knew Mr. Cope for a life time—Mr. W. W. Smart—expressed the very great regret with which they parted, and added—"In Mr. Cope we had a chief who was always accessible, always sympathetic with any of our little grievances, and always ready and willing to give us not only his professional advice, but from his ripe experience to give us guidance in the discharge of our duties towards the public—assistance which others, as well as myself, have found most valuable."

Mr. Cope leaves a widow, a son and a daughter to mourn his loss, and he leaves a void in the veterinary profession not easily filled. His position for 32 years afforded him an experience of the diseases of animals and of the legislative measures evolved for their control which is only equalled by that of one other member of our profession.

LOUPING-ILL AND BRAXY.

Five years ago the Minister of Agriculture appointed a committee to investigate these diseases. The committee consisted of Professor Hamilton, Dr. J. Mc I. McCall, Mr. Wheler and Mr. R. B. Greig (Secretary.) The delay in the issue of a report suggested to some of us that not much success had attended the efforts of the committee. But this fortunately was not the case, and the report discloses the most satisfactory results of an interesting and laborious research. On another page will be found an extract, which we propose to supplement by further quotations.

GENERAL ANÆSTHESIA.

In Capt. Martin's interesting paper upon General Anæsthesia, he states :—" I always cast the animal before administering the anæsthetic, it appears to me the only rational method. I consider the practice of giving chloroform before casting as dangerous both to the animal and to the operator and his assistants." I presume these conclusions are based upon actual experience, and as my observation of facts or events happening under the above circumstances vary from Capt. Martin's, I beg to make a few remarks. I have for the last 15 years anæsthetised standing all unbroken horses for any painful operation, particularly colts for castration, and I most certainly think that it is the easiest and most humane method yet devised. The colt can be chloroformed and operated on in the greater number of cases before the ropes can be adjusted under the old method of casting, fewer number of hands are required, the expense is very trifling, broken backs and thighs are unknown. But the potent drug, whether it be given in the standing or recumbent position, requires that its effect be carefully observed. Its use dispenses with that painful distractor—the twitch, which renders the animal quiet simply because the poor, confiding brute does not know which is the more painful, either its upper lip being nearly wrenched off or the highly sensitive testes removed. Surely with all the means of producing local or general anæsthesia that are at our disposal such an instrument of torture should never be used as an aid in performing any painful operation. The amount of chloroform required to produce anæsthesia depends greatly upon the idiosyncracy and condition of the animal, also whether it has undergone any process of previous preparation, etc. A colt running at grass and receiving no corn would require, on an average, from 2½ to 3½ ounces and the period of excitement would be very short, but if it has been receiving corn and is in a hard, robust condition, more chloroform will be required and the period of excitement will be longer. Thoroughbred colts usually require more chloroform than cart colts, and the excitement is proportionately greater.

Mr. Mayall thinks that six ounces of pure and twelve ounces of methylated chloroform is necessary to produce anæsthesia. I do not remember ever exceeding 6 oz. of methylated chloroform to produce anæsthesia, even in the most robust horse. The amount used in prolonged anæsthesia would naturally depend upon the time the animal was required to be under.

Bovines take chloroform exceeding well in the standing position, and it is rarely one sees any signs of excitement.

It is sometimes stated that chloroform leaves some mysterious deleterious after effects upon animals; this is not borne out by experience, and I am afraid the statement is made by those who are nervous of applying one of the instruments by which they should earn their daily bread, and consequently are to be pitied on the choice of their avocation.

Operating against time, particularly when using anæsthetics, is not desirable and should not be advocated. On one occasion I castrated a colt under forced chloroform (*plus* a certain amount of asphyxia) in 5½ minutes, the time being taken by Lord Lionel Cecil.

I operated on four yearling colts last week and the time taken to produce anæsthesia in the standing position and to operate was as follows—14 minutes : 8 ms. : 8 ms.: 11 ms. : and the quantity of chloroform used was 4½ : 3 : 2½ : 3 ounces respectively.

D. Pugh, F.R.C.V.S.

RUPTURE OF THE AXILLARY VEIN.

The subject of this case—rather an unusual one as far as my experience goes—was a grey mare, about twelve years old, which had been purchased only about a month before her death. During that month the only fault her owners found with her was that she was somewhat excitable and refractory when in harness.

One day she was out in double harness, and after travelling seven or eight miles at a steady trot, she suddenly faltered, and began to rest upon the pole (which was to her near side) and upon the other horse. The driver immediately stopped and examined her. He found the near fore limb trembling and incapable of bearing any weight, while he noticed, in addition, a large diffuse swelling over and in front of the muscles of the arm. The mare was at once taken out of harness, but went down in ten minutes, and died on the road within twenty minutes of first being noticed amiss.

An autopsy was made about ten hours after death. An enormous amount of coagulated blood was found filling the axillary space, forcing the scapula away from the thorax, and penetrating extensively between the adjacent muscles, and also under the skin in front, and to the outside of, the arm.

On clearing away this mass of blood (the quantity of which fully accounted for the sudden death) the source of the hæmorrhage was found to be a rupture of the axillary vein.

The only abnormality that could be detected in the structure of the ruptured vessel was that its walls seemed very thin. That, however, is merely the opinion of a general practitioner, with which an anatomist or pathologist might possibly have been inclined to disagree. V.S.

ABSTRACTS FROM FOREIGN JOURNALS.

The Result of my Treatment of Redwater in Cattle with Damholid in the Year 1905.—By Veterinary Surgeon Evers, of Waren.

At the commencement of the season of going out to pasture many a veterinary surgeon is called upon to treat redwater in cattle. My experience in the treatment of 35 cattle with damholid (a preparation of hæmoglobin) coincides with that of Westermann of Crivitz, recorded in the *B.T.W.*, No. 52, 1905.

When I wrote my article in No. 11, 1905, of the *B.T.W.* I advised employment of damholid per os on account of the cases of malignant œdema I had when employing it subcutaneously, yet to-day I must agree with Westermann that its employment per os in very severe cases is useless. Also I had a case in 1905 where in spite of a big dose of damholid (1250 g.) death occurred. Four further cases which I gave up as hopeless, because they showed no improvement when treated with damholid per os, when treated subcutaneously showed improvement in 24 hours, and eventually complete recovery.

Previously I referred to the great value in prognosis of the hæmoglobinometer of Gower, but to-day I rely on the thermometer in judging of the severity of the case.

Whilst at the beginning of the illness the temperature often stands high, through continued and profuse secretion of hæmoglobin, it often sinks perceptibly in one to two days. If the temperature sinks to 37 C. then in my opinion a fatal result is to be feared. If there is dark-coloured urine and a normal temperature, then I hold the case not to be critical, even if there is no appetite. Here the pulse is always plainly perceptible and strong. These cases in my view hardly need any therapeutic treatment, because the blood-forming organs form sufficient hæmoglobin to balance the loss by secretion. Lack of hæmoglobin in the blood sends the temperature down. The lack of hæmoglobin so acts on the intestine that there is no appetite, no digestion, and no defecation. When by treatment with damholid sufficient hæmoglobin is introduced into the system then the digestive organs take on again their normal functions.

Naturally the shortest and simplest way is to introduce it under the skin. Its introduction per os can never cause it to act so quickly and certainly, because the preparation undergoes many changes in the digestive tract. Therefore I recommend the treatment per os always to be introduced, and observations on the illness to be taken with the thermometer. If during treatment per os the temperature falls, and reaches 37 C., then I do not hesitate to inject 300 c.cm. of damholid solution subcutaneously.

I believe I have completely annulled the bad results I had by subcutaneous injection in 1904, by now dissolving the damholid in itrol solution and injecting it with a sterilised syringe at a clean and disinfected spot in the skin.

Itrol (argentum citric) dissolves only in 1 in 4000 of water, and in this weak solution is very destructive to pathogenic bacteria. This solution, contrary to other disinfectants, does not perceptibly alter the damholid. The solution of damholid must naturally only be prepared cold, otherwise an insoluble precipitate forms.

The production of the damholid solution is as follows. One first prepares an itrol solution 1 in 4,000 aq. dest. sterilisat. and filters this solution through filter paper. This solution must naturally be kept in a dark flask. Damholid up to about 20 per cent. dissolves in the itrol solution. The solution is best made by pouring 200g. of damlolid on 1000 c.cm. of itrol solution, letting it stand 30 to 45 minutes, then well shaking it and filtering through sterile wadding. This filtered solution is only subcutaneously employed after 24 hours. The injection must be made at a shaved and spirit rubbed spot with a sterilised syringe. These precautions taken abscesses never form, and no malignant œdema need be feared. I have made experimental injections on 40 animals, horses, cattle, and sheep up to 500 c.cm., and never had any bad results.

In animals which have no lack of hæmoglobin resorption takes place slowly. In animals with lack of hæmoglobin, as in redwater of cattle (and azoturia of the horse) resorption takes place quickly and works surprisingly.

Trials undertaken at the hygienic institute on cattle very ill with redwater would do good. By its employment subcutaneously anxious graduates might put faith in it if results were as favourable as herein stated. At the same time the laity could not adopt this subcutaneous therapy.—*Berliner Thier. Woch.*

G. M.

REPORT ON LOUPING-ILL AND BRAXY.

Introductory.

The Committee says: We feel that it is necessary to tender an explanation of the apparent delay which has occurred in the issue of this Report. We recognise that it is difficult for the lay mind to appreciate what an amount of labour is involved in the acquisition of scientific evidence on a subject so intricate. Our aim was to make the report as substantial and far-reaching as possible, and, naturally, to avoid giving publicity to statements which might prove ultimately to be founded upon an insufficiency of observation and experiment. All this means time, and hence we trust that the reticence we have observed will be construed in its proper light.

Our instructions were to investigate two diseases of the sheep, namely, louping-ill and braxy. Let us say, however, that the side-issues which have cropped up show how little the diseases to which the sheep is liable are understood—how much, in fact, they are misunderstood—and what necessity there is for a more extended and reliable knowledge of their nature and causes. From a pathological point of view they are a perfect mine of wealth, are fraught with scientific problems of the highest interest and importance, and are most suggestive of what may turn out to be a new light on the pathology of many of the contagious and infectious diseases of man and the lower animals.

Recognition of the Disease.

The symptoms at first appeared to be somewhat anomalous, and this rendered their study all the more perplexing, for while some of the animals exhibited distinct nervous spasms of the limbs and neck, or it might be almost complete rigidity, followed by more or less complete paralysis of motion, others again seemed to be in a dazed condition throughout and speedily collapsed.

We were confronted with the problem, therefore, of whether he had to deal with a single disease or whether this train of phenomena roughly comprised under the term "louping-ill" was of a two-fold nature. Had we to deal with two diseases running side by side, say

"louping-ill" proper, and so-called "black-quarter?" or were the symptoms due to the same agent modified in some peculiar manner?

It must be remembered and emphasised, that the sheep is subject to many other diseases, especially in the spring months, which may readily be mistaken for the disease in question, such as puerperal septicæmia or pyæmia, malignant œdema, sturdy, a form of anæmia known as "blood-rot" sometimes very prevalent in the early spring months, and, in lambs, spinal abscess with meningitis followed or not by pyæmia.

Unless the closest supervision is exercised these are liable to be confounded, one with the other, and with louping-ill, and go to swell the record of deaths from that disease. We had, therefore, to learn how to distinguish them clinically, and in time, acquired much skill in the recognition of the symptoms. The farmers and shepherds, although as a rule wonderfully proficient in diagnosis, were quite helpless when it came to a doubtful case. We have seen cases of Sturdy often passed over unrecognised or unsuspected; and these were not uncommonly attributed to Louping-ill. In fact, it happened frequently enough that the whole Committee were incompetent to come to a conclusion on the nature of a particular case until the post-mortem examination had been made.

In certain examples of the disease, we did not find any gross alteration of the tissues or liquids; everything answered, so far as we could ascertain, at this early period, to the healthy state. The carcase, although in poor condition appeared in these cases to be perfectly sound, the blood was of natural appearance, and perhaps only a slight excess of clear peritoneal liquid was all that served to attract attention.

In other examples, however, the tendency to putrefaction showed itself soon after death, the abdominal walls became green-coloured, and the abdominal cavity was found to contain a few ounces of opaque, muddy-looking, serous liquid. We have never seen any evidence of peritonitis in this disease, nor of pleurisy, and hence must conclude that the organism which is the cause of it does not excite inflammatory changes, and does not tend to induce suppuration.

It was this absence of definite lesion which rendered our search for the cause of the disease at first so difficult. There was no organ, liquid, or tissue of the animal in which we could localise the working of a morbid agent, and in which we might look for it with reasonable hope of success. Seeing that in many cases the symptoms are distinctly of a nervous type, we examined the brain and spinal cord with the greatest care, but these, like other parts, proved to be free from any pathological residuum. Yet the animals all round us were dying in numbers, and with symptoms of a very pronounced character.

It has been the practice of others before us, as it was with ourselves during this season of 1902, to slaughter most of the animals under observation when the disease was in the acute stage of its course. The reason for this is self-evident, for while the disease is at its height it might be supposed that there would be afforded the very best opportunity of detecting any lesions produced by it, and of securing the liquids and tissues in a perfectly fresh condition. As a matter of fact, however, if this method be practised, any clue to the cause of the disease will be almost certainly lost. Everything probably will be found in what seems to be an almost perfect state of health, without the slightest indication of where to look for the hidden cause of the disease. We learned by experience to renounce this method of procedure, to allow the animal to die a natural death, and to make the examination immediately afterwards. It was by so doing that the first indication of the pathology of the disease was obtained.

The difficulty of finding any particular organ the subject of pathological change, rendered, as aforesaid, the search for the cause of the disease extremely difficult. This difficulty was enhanced by our failure at first to procure a definite response to the inoculation of any of the liquids or tissues of the body.

From the symptoms of the disease, and from the fact of its affecting one animal after another, we suspected, naturally, that the blood of tissues of the body might be the seat of growth of a contagious germ, and the blood, accordingly, was examined with the greatest care. It can easily be drawn from the living animal by puncturing the main branch of the facial vein, and, in a wonderful state of purity, if precautions be taken to remove the hair and wash the cheek.

Suffice it to say, at present, that, after having sought laboriously through case after case for an agent in the blood which might explain the mystery of the disease, we signally failed to detect anything which could be taxed with this significance; the corpuscles occasionally showed certain alterations, minute vacuole-like spaces, probably due to the anæmic state of the animals, during the early spring months. These were so seldom encountered, however, and were so restricted in their distribution, that they failed to impress us with having any causal relationship to the disease.

So far as the blood is concerned, therefore, the conclusion we arrived at was, that it did not contain any parasite, animal or vegetable, and that it did not differ in any material respect, histologically, from the blood of a healthy animal. We compared, over and over again, the blood taken from sheep in perfect health with that taken from those suffering from Louping ill, and found it was impossible to make out any difference between them.

This conclusion was borne out by the results of inoculation. The inoculation of the blood subcutaneously or into the jugular vein failed invariably to reproduce the disease, even when practised on sheep taken from "clean" land, and which, presumably, had never suffered from it.

And here it may be mentioned that all the sheep we employed for experimental purposes were obtained from "clean" land,* that they were mostly of the Cheviot breed, the same as the majority of those suffering from the disease, and that they were kept in pens which had never been used for sheep, and away from the general run of pasture. They were, moreover, separated by something like a hundred and fifty yards from the pens where the sick animals were kept under observation. All of them were in perfect health and good condition at the time they were purchased by us. They were fed on turnips and hay, and took these greedily, even after prolonged confinement.

Discovery of an Organism in the Peritoneal Liquid.

Owing to previous experience gained in the study of Braxy, attention was early directed to the examination of the peritoneal liquid. In the cases which came under our observation at an early date, it was found to be either perfectly clear and apparently unaltered, or it was muddy-looking and opaque. It was seldom blood-stained, and, as described further on (Part II., Section VI., p. 31), this absence of blood-staining is characteristic of the whole carcase; in fact, the tissues usually presented a peculiarly blanched appearance, or were tinted green from incipient putrefaction.

When we slaughtered the sheep at the height of the disease, the peritoneal liquid had invariably the clear

* We use the terms "clean" and "foul" as applied respectively to land which is or is not infected by a specific contagious disease.

limpid character of that in health, whereas, did the animal perish in the natural course of the disease, it very often was turbid; but sometimes, even under these circumstances, it was quite unaltered, or appeared to be so.

Microscopic examination of the clear liquid usually failed to discover anything abnormal within it. A few lymph-corpuscles such as may be met with in health seemed to be the only particulate matter which it contained. The most persistent examination of it, stained or unstained, failed to reveal the presence of any microparasite. The turbid variety of the liquid, however, was always swarming with a bacillus. This bacillus was of great size (*see* Part II., p. 28), and in a large number of instances had developed a spore, also of large size, in its interior, while liberated spores were abundant in the surroundings. Where this turbid liquid existed, the abdominal walls and, indeed, the carcase generally underwent rapid putrefaction. The abdomen became distended with gas, and the odour, which was that of putrefaction, was very much in evidence. Those carcases, on the contrary, which possessed clear peritoneal liquid did not putrefy so rapidly, and the odour was less striking.

This sporing rod had a certain resemblance to that of so-called "Black-quarter" of cattle, and we supposed, at this time, that the two were identical. The sheep found to have clear peritoneal liquid had lived often for weeks, while those with the turbid variety had died mostly within a few days; and while in the former, nervous tremors and convulsive spasms were the most outstanding of the clinical features of the disease, in the latter, although not always, the symptoms exhibited were rather those of acute toxic poisoning, under which the animal rapidly succumbed.

The conclusion we arrived at, therefore, after our first visit to Kielder, was that we had to do with two diseases which curiously and unaccountably were occurring daily side by side, and in almost equal proportion, those with turbid peritoneal liquid being perhaps on the side of the majority.

Cultures were made of the bacillus found in the turbid peritoneal liquid, and these grew abundantly under anaërobic conditions. The spores usually vanished in culture, and an abundance of large, slightly mobile rods took their place, with considerable evolution of gas. With the limited knowledge which we possessed during our first sojourn at Kielder, it was, in a manner, pardonable that we supposed this organism to be that of Black-quarter.

When this turbid peritoneal liquid was inoculated subcutaneously in the sheep, especially along with a little acetic acid, it usually caused the death of the animal within twenty-four to thirty hours accompanied by tremendous œdema of, and hæmorrhage into, the limb inoculated, together with effusion of opaque liquid into the abdominal cavity. Both the liquid of the leg and that contained in the peritoneal sac of the inoculated animal were found invariably to be swarming with the same sporing rod.

Question of the Disease being Black-quarter.

With the view of ascertaining whether Louping-ill is Black-quarter we made inquiries throughout Aberdeenshire, where the latter is fairly common in calves and other young cattle, for any cases that might be occurring, and soon heard of two—both in young cattle. We examined the carcases of these animals with great care, and found that the appearances after death correspond with those recognised as distinctive of Black-quarter. The cases had been diagnosed by veterinary surgeons chiefly through the collapsed state of the animal, the emphysematous crackling and œdematous swelling of the subcutaneous areolar tissue in certain parts of the body, manifestly in the hind extremities, and by the suddenness of the death. In neither of them was there a cutaneous lesion of any kind.

The appearances found at the autopsy were alike in both: There was considerable œdema of the swollen parts, gas escaped from them when they were incised, the whole carcase was deeply blood-stained, particularly in those regions where œdema and emphysema prevailed, while there was considerable effusion of blood-stained and opaque serous liquid into the peritoneal cavity.

The peritoneal liquid in both of them contained a sporing rod identical with that of Black-quarter, while the contents and mucous surface of the intestine were literally teeming with the same organism. Some of the intestinal mucus was purified by being heated up to 80° C., and thereafter was injected subcutaneously into the sheep, causing the death of the animal in a few hours with all the appearances of Black-quarter, the same sporing bacillus being present in overwhelming numbers within the peritoneal and other liquids throughout the body.

On Romney Marsh, in Kent, there is a very fatal disease of sheep which goes by the name of "Struck," probably from the fact that the animal is attacked suddenly and dies within a few hours. This disease has been pronounced by Principal M'Fadyean to be Black-quarter in the sheep, chiefly, we believe, from the examination of the organism found associated with it. The disease, like so many others of the sheep, occurs periodically, the early spring months representing the period of greatest intensity. The loss from it is very large, and although sporadic cases evidently occur elsewhere in the South of England, Romney Marsh appears to be its head centre.

During the month of April, 1904, the Chairman of the Committee visited Romney Marsh, and through the kindness of Professor Cave, of the Agricultural College at Wye, was enabled to see two carcases of sheep which had died recently from the disease. They were blown out with gas to a tremendous extent, were intensely blood-stained, and the abdominal wall was already becoming green-coloured. The subcutaneous areolar tissue was infiltrated with œdematous liquid, and, in the one case, the abdomen contained several ounces of blood-stained and opaque serum, while, in the other, the pleural cavities were filled with the same, but the peritoneal cavity was almost dry. The odour of the carcase resembled that of Braxy and was not that of ordinary putrefaction. There was an absence of all external lesion, although parts of the subcutaneous areolar investment were more blood-stained than others, and more profusely distended with gas.

The appearances generally, in fact, might quite well have been mistaken for those of Braxy, and had the animals died in a Braxy district their deaths would undoubtedly have been put down to that cause.

The liquids of the carcases swarmed with a sporing bacillus which resembled in most respects that of black-quarter. The contents and mucous surface of the intestine were beset with it.

Now, if it be true that the former of these diseases represents Black-quarter in cattle, and that Struck is simply the same disease in the sheep, then Louping-ill certainly is not Black-quarter. The symptoms are quite different, for while in the most acute Louping-ill cases, death seldom occurs before a lapse of three or four days, in bovine Black-quarter it may take place within twenty-four to thirty-six hours, and in Struck the animal may be dead within an hour or two after being noticed to be ill, or may die almost instantaneously if disturbed. Black quarter is not accompanied by nervous phenomena, and the most careful inquiries made in the Romney Marsh district failed to elicit that they are ever observed in Struck.

Then, the post-mortem appearances are at variance, for while in Black-quarter and Struck blood-staining and emphysematous distension of the subcutaneous arleolar tissue are such notable features, accompanied by more or less œdema, these characteristics are mostly absent in the Louping-ill carcase. The odour of the Louping-ill carcase, in addition, is not the same as that of Black-quarter or Struck; the quality of the odour in the case of Louping-ill approaches that of ordinary putrefaction, but the odour of Black-quarter and of Struck is practically identical with that of Braxy.

The question of Louping-ill being Black-quarter in the sheep may, therefore, be put out of court; the two diseases are opposed to each other in all essential respects.

Failure to Inoculate the Disease from various Organs and Liquids.

On the supposition that there might be a specific organism in the spinal cord or brain, or that this might reside in the cerebro-spinal liquid, portions of these organs were beaten up with beef tea, and the liquid injected subcutaneously, but invariably with a negative result. Cerebro-spinal liquid was also injected subcutaneously, but again without producing any effect.

Thinking that the poison might be like that of hydrophobia, and that it might grow with facility upon the brain, spinal cord, or the cerebro-spinal liquid if introduced artificially, we beat up portions of cerebrum, medulla oblongata. and spinal cord, from a typical case, with sterile water, and injected the liquid nnder the cerebral dura mater, but, as before, without positive issue; the operation did not even induce a meningitis.

The contents of the stomach and intestine mixed with a little water were given by the mouth, but still without communicating the disease. The same mixed with intestinal mucus was injected into the rectum, but again with the same absence of positive following. The reason for this we now understand. The organism may be introduced into the alimentary canal of the sheep with impunity in the vast majority of cases. Unless the animal be in a susceptible state of body at the time, unless the blood have lost its protective bactericidal action, the presence of the organism in the intestine does not exert any deleterious influence.

Liver and bile were inoculated subcutaneously, but failure to reproduce the disease or to call forth any positive symptoms followed as before.

Question of the Disease being Infectious.

Early in the history of our proceedings, it seemed as if we were to be baulked in our efforts to communicate the disease through the agency of any of the liquids or tissues of the body, and, accordingly, we resolved to test whether it was of the natnre of an infectious fever. Sheep from "clean" land were shut up in a small chamber with those suffering from Louping-ill, but although they were all in the closest contact they invariably failed to take the disease.

End of First Season at Keilder.

The season being over, we left the Kielder district this summer (1902), after nearly two month's sojourn, with certainly a knowledge of the symptoms and morbid anatomy of the disease, of the negative character of the blood as a medium of contagion, of the difficulty of reproducing Louping-ill by inoculation, and under the impression that we had to deal with two diseases, the one Louping-ill proper the other so-called "Black-quarter."

Observations made during the Months intervening between the Seasons of 1902 and 1903.

Further Examination of the Peritoneal Liquid.

During the months intervening between this and the following spring, time was afforded to examine the various liquids and tissues brought to Aberdeen, and to review and consider the information we had accumulated. We discovered that if the clear peritoneal liquid just referred to as being present in certain cases were incubated at a body temperature for a matter of twenty-four to forty-eight hours, it became turbid. On examining it microscopically, in place of being barren of germ life it was now found to be swarming with a large sporing rod identical with that discovered in those cases where the peritoneal liquid was thick and muddy-looking.

This threw a new light upon the supposed two diseases. The peritoneal liquid in both contained the same organism, in the one case, so abundant that it was easily recognisable, in the other case, so sparsely distributed as to be unrecognisable microscopically, but developing freely after from twenty-four to forty-eight hours' incubation at a body temperature. During incubation, the liquid, it should be mentioned, was retained in sealed tubes. At the end of twenty-four hours, sporing bacilli were abundant, We repeated the observation in case after case, and always with the same result, provided the animal had not been slaughtered but allowed to die a natural death, the liquid being removed immediately afterwards.

The blood, on the contrary, usually remained germ-free after incubation, or developed only such impurities as had gained access to it accidentally.

In the case of the peritoneal liquid, the sporing organism usually grew in a state of wonderful purity. It was a rare circumstance to find it contaminated, even with the bacillus coli type of organism, nor were the ordinary germs of putrefaction present in it to any great extent. In most instances the organism seemed to kill off or inhibit the growth of any extraneous contamination which might be supposed to have gained entrance to the liquid.

When the tube containing the incubated liquid was broken a whiff of gas escaped having the odour of putrefaction characteristic of those carcases in which the peritoneal liquid was turbid. On our second visit to Kielder in the spring of the year 1903, we verified the above observations time after time. The rod which which developed in the clear liquid always had the same characters, was large and stout, slightly motile, and developed a relatively large oval-shaped and brown-coloured spore usually located towards one end.

The next step in our procedure was to see whether this incubated peritoneal liquid would induce symptoms when inoculated. Subsequent experience showed us that the turbid peritoneal liquid when injected subcutaneously into the sheep, especially with a little acetic acid, calls forth invariably the gravest manifestations. The limb becomes tremendously œdematous, the animal displays symptoms of toxic poisoning, and death as a rule follows in a few hours. We found that with the incubated clear liquid exactly the same train of phenomena supervened; the animal, in most cases, died within a few hours, or, if, as occasionally happened, it survived, the limb continued œdematous for days, the animal remained in a listless half comatose condition, and even after a week had not entirely recovered. A rapidly fatal issue, however, is what is to be looked for, as a consequence of the experiment.

As previously indicated, those cases with clear peritoneal liquid generally live longer than those in which it is turbid. We have seen an animal live in a paretic and totally helpless condition for a period of five weeks, and, on its dying, the peritoneal liquid exhibit the clear, limpid appearance of ordinary peritoneal secretion. The convulsive spasms of the limbs, followed by partial paralysis, are usually better manifested in these chronic cases than in those in which death ensues more rapidly, and in which the peritoneal liquid is turbid. Yet our indisputable observation, repeated over and over again,

showed that when the clear liquid was incubated and inoculated it produced exactly the same phenomena as when the turbid variety was employed, namely, violent symptoms of acute toxic poisoning, with intense œdema and hæmorrhage, extending upwards and downwards from the point of inoculation.

The cultures, moreover, made from the two varieties of peritoneal liquid proved to be identical. On Glucose-beef-tea the organism in both cases grew anërobically with extreme vigour, and was found to have the same morphological characteristics; the medium remained diffusely turbid for several days, and much gas was evolved.

(*To be continued.*)

VARIATIONS AND DISEASES OF THE TEETH OF HORSES.*

Discussion.

The President thought that after careful consideration the paper would throw a great deal of light on human dental disease. He desired to know whether Mr. Colyer had compared the skulls of any wild horses with those of tame horses, in order to see whether caries was present. The question of lodgment of food and fermentation was especially interesting. He had often noticed in human subjects, invalids and those who were taking food in the course of the night, that the teeth of such patients deteriorated very rapidly.

Mr. F. J. Bennett desired some information from veterinary surgeons as to how far rickets might be responsible for some of the conditions shown, especially the condition known as "parrot mouth." It appeared to him as a possibility that not only was the mandible at fault, but that the maxillæ being in a soft condition had yielded to pressure and assumed the curious condition. Mr. Colyer's valuable paper was an illustration of the many unknown springs waiting to be tapped by men of energy. Years ago, Mr. Storer Bennett collected from the Zoological Gardens a vast number of pathological specimens, showing diseased conditions of jaw bones as well as of the teeth. That collection made a new departure in the Museum and served as the basis for the very valuable collection to which Mr. Colyer had now made important additions. There were other animals that might throw light on disease in man and be of assistance to the profession, if only members would follow Mr. Colyer's energetic and capable work. The question occurred to him: Was it possible, or likely, that periodontal disease in horses was entirely a local condition and due to the effect of food stuffs? It seemed to him that in pyorrhœa alveolaris, and other forms of periodontal disease, sufficient account was not taken of the altered environment of the animals. It had been recognised by good clinical observers that men might be suffering from a discharge round the necks of the teeth at the end of a busy London season; they went off to Scotland for a holiday and came back with the pyorrhœa alveolaris considerably checked, and it remained checked until city life and excessive work brought on a fresh attack. Perhaps some of the cases in horses might be attributed to the condition of town life where the air was not so pure, and the stable conditions not so healthy. Mr. Colyer thought it was the lack of grass and the altered condition of the food supply, and probably that the excess of food necessary for the larger proportion of work would correspond with the case of city men. City work might lower the vital resources and produce a condition of chronic congestion of the gums, which might account for the disease, apart from the altered condition of food. It was a matter that would bear working out carefully.

Mr. Thomson said that Mr. Colyer had spoken of periodontal disease of horses as being a disease of captivity, but he did not know whether it had occurred to him that horses running almost wild in countries where there were prolonged droughts died more from periodontal disease than from actual starvation. The horses dug up the roots, and in chewing, grit and sand got between the gum and the teeth, and periodontal disease was set up. He thought skulls might be found bearing out that statement. On the previous occasion Mr. Colyer had spoken rather disparagingly of the treatment of periodontal disease in horses, but he hoped that he had found that something could be done.

Mr. J. G. Turner, referring to the case of "parrot bite," asked whether Mr. Colyer had noticed the occlusion of the teeth with the view of seeing whether that would throw any light on the point whether the mandible was retracted or not? Also in connection with cases of crowding in the premolar region, whether there was retraction or want of growth in the mandible? He also wished to know whether any caries had been found on the buccal surfaces of teeth in horses?

Mr. H. Baldwin said that excursions into comparative dental pathology were extremely interesting, as they showed the common basis existing between animal and man, both anatomically and pathologically. The instance of the "parrot bite" was particularly interesting, especially as Mr. Colyer attributed it chiefly to a defect in the mandible, under development probably. In the human being cases of so-called superior protrusion were coming more and more to be thought to be due largely, if not entirely, to under development of the mandible, and carrying the parallel a little further, one was inclined to wonder whether the smallness of the lower jaw was associated in the horse with the same condition with which it was associated in the human being—whether the horse suffered from adenoids and enlarged tonsils. With regard to the question of the manner in which some of the molars and premolars fitted together so very closely with the approximal surfaces interlocked, he imagined those interlockings were due to wear from lateral friction of the teeth against each other. Mr. Colyer thought it was erosion. In that case the hollowing out of the one tooth must be caused when the other tooth was still under the gum and still in contact with soft tissues. If that was so, it could be only explained by the ridge which fitted into a corresponding hollow in the next tooth continuing all the way down the side of the tooth, and right under the gum. In the case of the impacted premolar there was a very interesting alteration in the shape of the body of the bone, showing how the position of an abnormal tooth might cause a great alteration in the shape of the body of the bone. He could not agree with Mr. Colyer's views regarding the etiology of most of the diseases seen in the human being in the alveolar dental periosteum, as in cases of pyorrhœa, but he should like to know more fully what were Mr. Colyer's views before discussing the matter.

Mr. Payne also referred to the specimen showing the "parrot bite." He noticed that on the labial surfaces of the upper incisor teeth a considerable amount of wear had taken place. This condition could hardly be due to attrition, because apparently there had been no occlusion of the lower incisors to explain it, but a cause might be found in abrasion or erosion. He should like to know whether Mr. Colyer had any explanation to offer in reference to this point. Before the meeting he had an opportunity of casually glancing at the tooth which Mr. Colyer had described as a geminated molar, and it seemed to him to resemble more closely an irregular mass of dental tissues such as one finds in an odontome.

* *Transactions of The Odontological Society of Great Britain.* December, 1905. Reprinted by permission.

Mr. CARL SCHELLING asked whether Mr. Colyer could explain why the teeth of horses, erupting into a crowded mouth caused absorption of the teeth already in place? He asked the question because he recently saw a girl fourteen years of age, whose upper right canine could be felt lying externally and across the root of the central incisor of that side, and before it could be seen on the surface of the gum the canine, apparently following its absorption organ, erupted into a cavity formed by it in the root and neck of the central incisor, causing pain when the pulp was reached. That necesitated the extirpation of the pulp of the central incisor, and six months later an extraction of the canine, when its direction could be seen, and the filling up of the cavity in the root of the incisor. It was a wonder that condition of affairs did not more often occur. He desired to ask Mr. Colyer if there was any particular reason why horses should suffer from that misdirection of the erupting permanent teeth more often than human beings?

Mr. W. HERN thought the paper was most interesting and opportune: interesting for many reasons that had been mentioned, and opportune because with the increase of motor traffic there would never occur again so many horses in a city like London from which to obtain specimens. Therefore, the further the investigations were continued now the better for the Society. With regard to caries, he asked whether Mr. Colyer had examined the caries for any organisms in the dentine, and if so what organisms were found? whether the microscopical appearance of the caries was similar to that which occurred in the human subject? An interesting seecimen shown by Mr. Colyer was the curious attrition of a tooth in the maxilla, in which the opposite tooth in the mandible had become elevated and had bitten through its antagonist. Was there any history of caries having preceded the attrition? It seemed a most unusual thing for a tooth to wear down in that way without some other cause than a possible reduction of hardness. Mr. Colyer's remarks on diseases of the periodontal membrane were interesting, especially his opinion, with which he agreed, that these cases rather tended to confirm the view that periodontal diseases in the human subject was largely local. Horses presumably were not subject to the constitutional conditions of the human subject, it was therefore interesting to hear that conditions simulating periodontal diseases in the human subject were to be found in horses. He should like to hear from a veterinary surgeon what treatment was adopted by them in these cases, and whether there was any pus discharge from the gums such as was found in the human being.

Mr. J. A. W. DOLLAR, M.R.C.V.S., late President, Royal College of Veterinary Surgeons, speaking as a visitor, thought his remarks would have to be chiefly of an apologetic character, because he regretted to say that the profession of veterinary surgery was not at present in a position to afford any great amount of information with regard to the chief points brought before the Society that evening. The veterinary profession, although highly specialised in certain directions, had not yet given its attention, nor indeed was there any great economical demand for such attention, to the treatment of horses' teeth as a separate branch. Great interests had been confided to veterinary surgeons, such as dealing with contagious diseases, diseases communicable from animals to men, the general welfare of the farm and breeding stock of the country, all of which were of immediate importance, resulting in an immediate and satisfactory return to the practitioners; but there was not so large a proportion of recognised dental cases amongst the patients as to make the pursuit of equine dentistry, still less that of bovine or ovine dentistry, a paying pursuit, and therefore that branch had not received a great deal of attention. Nevertheless, such conditions did occupy the veterinary surgeon from time to time, but solely from the clinical standpoint, solely as related to the effects they produced on the health of the patients. He regretted to say that until the last ten or twelve years it had been a matter for dispute in veterinary surgery whether true caries actually occurred in horses, but that question was satisfactorily settled some ten years ago when his friend and teacher, Professor Möller, of Berlin, afforded evidence on the point, and in a work published by Professor Möller, and which he had the honour of translating, the Professor had dealt at some length with the question. The occurrence of caries, however, in animals was perhaps of not such great clinical importance as that of the condition of periodontitis, which was generally called by veterinary surgeons alveolar periostitis. That condition was of greater importance, and occurred more frequently in veterinary practice and demanded more attention than any other dental disease. Some question had been asked as to the manner in which the condition was brought about. Speaking solely as a clinician, he would like to direct attention to a fact which appeared not to have been mentioned in the discussion, namely, the very peculiar state of the food which the civilised horse received. The wild horse naturally gathered the stalks of grass in a long and pliable condition, and was able to masticate and dispose of them in a satisfactory manner without injury to the mucous membrane covering the jaw. But the practical necessities attending the keeping of large studs of horses demanded that a civilised horse should be rendered as effective a machine as possible; the object of every horse owner in London and elsewhere, was to obtain as large a return from the animals in as short a time as possible, and for that purpose they fed the horses as intensively as possible and at the same time worked them very hard. In order to enable the horse to masticate and digest the largest quantity of food in the shortest time, the hay, straw and other forms of food of that description, were previously cut into short lengths and supplied in the form of chaff. The long flexible stems of grass and hay were not likely to wound the mucous membrane except through their sharp edges, but the short lengths of chaff were a constant menace, because if the smallest aperture existed between two of the teeth some of the particles of chaff, which were of a woody nature, and occasionally interspersed with fragments of thorn and particles of wood from hedges, might be forced between the teeth, and eventually produce pressure on the gum, causing necrosis. Those particles then become insinuated between the gum and the tooth, and by a repetition of the process made their way into the alveolus, carrying with them purulent organisms, setting up irritation which resulted in alveolar periostitis. A question had been asked as to whether that form of disease was due to local or general causes. From his clinical experience he felt inclined to regard it as due partly to one and partly to the other. From the reports of colleagues, more particularly French colleagues, he thought that alveolar periostitis was capable of appearing in an almost epizootic form. In Annam, Hunan, and certain portions of the French possessions in the East, a disease which had been described as osseous cachexia appeared. Its origin had been referred to the want of certain lime salts and more particularly of phosphates in the soil. The results were very peculiar. The bones gradually became deprived of their mineral constituents, and the animal showed clinical symptoms closely analogous to rickets in the human subject: the bones bent, the mandible became more or less softened, the teeth were displaced, and more frequently before any displacement of the teeth took place alveolar periostitis set in, and the animal rapidly died of inanition owing to its inability to masticate its food. That was an instance of the disease brought about by a general cause. He thought the disease seen in London stables,

more especially in the stables of omnibus and cab proprietors, was due largely to local causes, and some light was thrown on that by the manner in which another very curious disease had been proved to be brought about, viz., actinomycosis, a disease which in veterinary practice was comparatively common, but which he thought was somewhat uncommon in the human subject. He had seen one or two cases in man, but in horses the disease was well recognised, and in oxen comparatively common. The disease was produced by the so-called ray fungus. In the ox it attacked o casionally the tongue, which it rendered stiff and incapable of protrusion, so that the animal was unable to grasp its food; in other cases it attacked the jaw, giving rise to chronic suppuration and localised necrosis. The entrance of the organisms into the bony tissue of the jaw had been proved to be invariably due to fragments of thorns or of hard food wounding the mucous membrane, and in the vast majority of cases the organisms entered between the mucous membrane and the tooth itself. He therefore thought it was not unreasonable to believe that many cases of alveolar periostitis were set up in the same way. In addition to the cases of "parrot mouth" and so-called "shear mouth" in horses, there were one or two other very interesting conditions. It was believed in certain cases that what had been called the "smooth bite" or "smooth mouth" in horses, in which the molars became smooth and ceased satisfactorily to grind the grain, was also in large measure due to peculiarities of feeding, continued over a considerable length of time, and he believed that condition of mouth was found in certain districts where it seemed to be more or less closely associated with peculiarities of soil.

Mr. J. F. COLYER, in reply, said that possibly when the paper was read in the Transactions it would be more connected than he had been able to read it that evening. He had only touched the fringe of the subject, but he hoped as time went on, if he had the energy and opportunity, to go into the individual subjects more fully. He would like Mr. Dollar to have answered Mr. Bennett's question. Mr. Willis had told him that rickets was comparatively uncommon.

Mr. DOLLAR said in this country the disease was uncommon.

Mr. COLYER said that with regard to the "parrot mouth" the curious thing was that when he wanted to examine into the question a little more fully, he could not obtain a "parrot mouth," but Mr. Willis had promised to send him some specimens. He wanted particularly to inquire into the question of the occlusion of the teeth, which was a most important subject. He was not inclined to think that the so-called "parrot mouth" was in any way similar to the condition of superior protrusion, and the question whether horses had adenoids and enlarged tonsils was a question Mr. Dollar might answer. With regard to the misplaced teeth, he did not know that it was very similar to the condition described by Mr. Schelling. A malplaced tooth in any part of the head, if it began to erupt and came in contact with other tissues, invariably caused absorption. He had not had time to examine the question of caries thoroughly. The question was, whether it was a true caries as met with in the human being, *i.e.*, whether the decalcification of the tooth tissue was followed by the peptonising action of bacteria. The only specimen of which he had been able to cut a section and stain with fuchsin, showed micro-organisms. He was pretty well convinced that it was a condition similar to that in man, but the same phenomena one could not expect to see. One would not expect to see the "liquefaction foci," and so forth, because the tooth tissue was rapidly removed by the process of attrition. But if there was decalcification of lime salts, followed by the peptonising action of bacteria, whether the actual appearances were the same did not seem to him to matter, provided the two forces were at work, as he believed was the case. He thanked Mr. Dollar for what he had said, and was extremely interested to hear about the epidemic periodontitis. Of course, undoubted cases of periodontal disease were met with in human beings which might be attributed to general causes, but he thought the tendency had been to attribute too much periodontal disease to general causes and leave aside local causes. The specimens of animals in the Museum all showed the same condition as found in man, and he did not for a moment believe the condition was the result of general causes, but that they were all due to local causes. With regard to the "smooth mouth," which he confessed he had not seen, the interesting feature was that the "smooth mouth" was attributed to some peculiarity of feeding and certain soils. That was the point that required to be worked out in disease. What had been said about periodontal disease came back to the fact that the horses' diet had been altered, he had been made to masticate less, and consequently there had been a lessened blood supply to his teeth.

The PRESIDENT, having thanked Mr. Colyer for his paper and the gentlemen taking part in the discussion, the meeting adjourned.

THE CENTRAL VETERINARY MEDICAL SOCIETY.

An ordinary general meeting was held at 10 Red Lion Square, W.C., on Thursday, May 3rd, 1906. Mr. A. L. Butters, President, in the chair. There were present Messrs. E. Lionel Stroud, James Rowe, W. Urquhart, Guy Sutton, Ed. A. Batt, A. Neish, Sydney H. Slocock, G. H. Livesey, R. Eaglesham, R. F. Wall, L. Savournin, W. Perryman, Herbert King, Percy S. Howard, A. E. Willett, A. R. Routledge, Capt. Cochrane, Major Taylor, Major Butler, George Upton, Ainsworth Wilson, R. A. Philp, Col. Duck, A. Rogerson, Prof. Macqueen, Prof. Pritchard, A. E. Gostling, J. B. Hare, Wm. Hunting, W. Roger Clarke, and Hugh A. MacCormack, Hon. Sec.; and as visitor, A. C. Bull.

The minutes of the previous meeting were taken as read and confirmed.

CORRESPONDENCE.

Letters and telegrams were read from Messrs. Frank Leigh, J. C. Coleman, and Sidney Villar, regretting their inability to be present.

Respecting Mr. Slocock's resolution, *re* R.S.P.C.A. officers, communication was received from the Scottish Metropolitan V.M.S. promising support.

Communications were also received from the Secretary of the Royal College of Veterinary Surgeons informing the Society that both Mr. Slocock's resolution, *re* R.S.P.C.A. officers, and Mr. W. S. Mulvey's resolution, *re* Inspection of Horses by Police, were brought before the Council at their meeting on the 6th inst., and both resolutions were referred to the Registration Committee for consideration and report.

A circular letter was read from the Royal Institute of Public Health requesting that delegates be sent to the meeting to be held at Cork on June 28th to July 3rd, 1906, both days inclusive.

FRACTURED VERTEBRÆ.

Mr. PERRYMAN exhibited a fracture of the second dorsal vertebra of a horse that was run into by an electric tram. When he arrived on the scene the horse was in a comatose condition, and he diagnosed some injury to the brain and ordered the horse to be slaughtered. The post-mortem examination showed a fracture of the second dorsal vertebra, and it was interesting to find the

impact transmitted so far down the spinal column. The bone was completely smashed.

Mr. PERRYMAN also exhibited the lumbar and sacral vertebræ of a cart horse which he had had under observation for something like twelve years. The horse was a pronounced shiverer from his youth upwards, but was capable of managing an average load of between two and three tons every day, and occasionally drawing as much as four tons, being able also to back and put the load into any position required. Also the animal could always lie down until within the last few months. He had only had the animal under treatment two or three times, once for a sand-crack, the symptoms of which were so aggravated that he thought the horse would die from irritative fever, and on one or two other occasions he had treated the animal for wounds. The original firm sold the horse last September, but fortunately it was bought by another client, and it had therefore fallen to his lot to be in at the death, and he had the bones boiled down. There was a large amount of exostosis and all the oblique articulations showed a certain amount of ossification. On the second bone there was a hook process, and on the third and fourth huge bony deposits, and it was wonderful the horse had gone on so well for so long. He had looked up the text books, but found them devoid of information. He thought that the exostoses must injure or irritate the different nerves emanating from the spinal column, and it would be instructive to discuss the questions of irritation which the condition must have set up, especially having regard to the lack of information on shivering in the text books.

X-RAY PHOTOGRAPHS.

Mr. LIVESEY exhibited some excellent x-ray photographs, the first one being the right front paw of a Chinese pug. The dog went lame in an unaccountable manner, and showed a great deal of pain, particularly in the fourth digit. He could not ascribe any cause to the lameness, but the x-ray photograph showed a subluxation of the last joint.

Two other photographs represented a fracture of an upper third of the femur in the right hind leg of a cat. Capt. Martin seemed rather to disbelieve the fact that animals were capable of suffering from very severe injuries without showing marked symptoms of pain, and he had brought the photographs forward for Capt. Martin's information. The cat broke the right femur, and when he saw it a fortnight afterwards he felt a large swelling on the upper third of the bone, but he could not be quite certain it was a fracture as he was unable to get a definite crepitus. The x-ray photograph was taken and a fracture was at once revealed. It was rather a surprise, because the cat would allow the leg to be pulled about in any way, or pinched. Under the rays the bones could be pulled apart and brought together again without the cat wincing; in fact it went on purring the whole time.

Mr. SAVOURNIN said Mr. Perryman's case of the spine was interesting because it was very rare to be able to follow a case for so many years through more than one owner. In the second place the literature was very scarce indeed, and he was glad to hear Mr. Perryman admit that he went to the text books and consulted them. He himself at present had a case which was causing him some trouble. About five months previously he had examined a mare for soundness, and that morning had received a message to go and see her, and found her well through the symptoms of shivering. The off hind leg was flexed very strongly, and the muscles of the breast under the shoulder shivered a little. The driver had told him that in the last few weeks he had noticed when pulling her up amongst traffic she humped her back very much like a camel, and sometimes her back went so high as to hide her head. He felt the spine very carefully but could discover no symptoms of what was commonly called "jinked back," nor could he make her flinch by pressing on the spine. The mare was in good health otherwise. There was no preliminary symptoms, the condition coming on with great suddenness, and he was curious to know what was the matter, and what was the cause.

Mr. W. HUNTING asked whether there was really any reason to believe that the pathological condition of the spine had anything to do with the shivering. He had seen just as much bony deposit upon the spine of old horses that were not shiverers.

Prof. PRITCHARD went a little further than Mr. Hunting. He had come to the conclusion that in a case of shivering the intervertebral gaps of the foramena of the sacrum must be interfered with. As far as he could see from the specimen there was not the slightest chance of paralysis. Mr. Perryman had spoken of irritation, but any interference with the passage of the nerve from the spinal cord to the muscle would be much worse than irritation. It would be absolute paralysis. He quite agreed with Mr. Hunting that it was a common thing in old horses to find that condition of the spine. In fact there were few spines of old horses of from ten to fifteen years of age that were without such bony enlargements.

With regard to the specimen of cervical vertebræ, he wished to know whether the horse had suffered from anything prior to the accident, as he noticed in the concavity of the body of one of the vertebræ there was strong evidence of disease having existed for some considerable time.

Mr. PERRYMAN said he knew nothing about the horse that was injured by the tram, having been fetched to it in the s reet by the police. In the second case there was no evidence of paralysis, and he thought that a shiverer denoted some irritation of the nerve fibres. He thought there must have been a certain amount of ostitis at some time round the intervertebral gaps. The hook like deposit could not have occurred without a certain amount of irritation of the surrounding tissues close to the nerve. He had published a case of paralysis some time ago when there was an exostosis between the third and fourth lumbar vertebræ—a bony nodule about the size of a walnut blocking up the gap, and the horse showing paralysis of the bladder, rectum, and tail. The symptoms were totally different from the ordinary shiverer. He suggestion that if a case of shivering in a young animal could be obtained so that a post-mortem might be made it would be exceedingly useful and instructive.

Prof. MACQUEEN did not think there was anything novel about the specimen, as it was an exceedingly common thing to find a spine in that condition; in fact horses of five years old might be found with considerable additions to the spine in the form of bony enlargements. Horses that broke their backs jumping were found with ankylosis between the last lumbar and the first sacral. He believed the condition of the spine had nothing to do with the symptoms, and he was surprised that anyone at the present day should ask whether an ossified spine had any connection with shivering. Shivering had been known for a great many years to be due to changes in the spinal cord; it was really a progressive sclerosis of the spinal cord. It was usual to regard the symptoms of shivering as a form of motor paralysis; there was evidently a want of co-ordination. He agreed with Prof. Pritchard that there could be no interference with the nerves as there was no evidence of any growth on the edge of the foramena. The enlargement near the joints were quite consistent with ordinary health.

Mr. UPTON said ankylosis was frequently found between the lumbar and sacrum in some horses that shivered, and as the disease became worse the ankylosis

increased. He believed shivering was due to an injury.

Mr. HUNTING thought it would be a good thing for the Council to offer the money to purchase a shiverer or two when any of the members came across a good case. It would be certainly a step in the right direction, and he would make a motion that it be suggested to the Council.

Prof. PRITCHARD seconded the proposition, which was agreed to.

Mr. PERRYMAN could not understand Prof. Macqueen's suggestion of paralysis. If ever there was a powerful animal that horse was one. Some shiverers showed paralysis and weakness in the loins, and were unable to lie down or back a load, but not all of them.

FRACTURED PELVIS.

Mr. ROUTLEDGE exhibited a portion of the pelvis of a mare that had fallen at work about two months ago, fracturing the pelvis. She was fetched home, and as she was being taken out of the ambulance fell again. The stifle region immediately beginning to swell till the whole quarter puffed up, subcutaneous hæmorrhage due to laceration of vessels by the fractured bones was diagnosed. Examination per rectum revealed a large tense swelling the right side of the pelvic floor. The mare was put in slings, and about a week after admission to hospital was in such pain, due to the tension of skin, that it was deemed advisable to lance the swelling in the stifle region; about a bucketful of blood clots was evacuated, the systemic disturbance abated and the mare became easy and fed well. On examination per rectum three weeks after admission a peculiar swelling was noted about the size of a large lemon running in line with the ischium in conjunction with the pelvic blood vessels, communicating a peculiar thrilling sensation to the finger tips, with more marked pulsation towards the anterior portion of it. Free communication with the iliac veins could be seen in the dissected specimen, but though he had searched diligently he was unable to find direct arterial communication. The formation of bony plates could be noted in the sac walls. He did not know whether it was an aneurismal varix or an aneurism, and would like the opinion of the members on the point.

Mr. LIVESEY referring to the case exhibited by Mr. Perryman, and to Mr. Savournin's remarks with regard to jink back, desired to know what Mr. Savournin expected to find by passing his hand along the back. In certain cases horses flinched under one's fingers when pressed, and he had ascribed that to some strain of the psoac muscles, but he did not know how anyone could find out jink back or shivering by simply passing the hand along the loins. He also desired to ask Prof. Macqueen whether, if shivering was caused by a sclerosis of the spinal cord, it was to be considered similar to tabes dorsalis in the human being, and whether the incoordination arose in the nerve fibres of the spinal cord or in the cerebellum. He mentioned the case of a shiverer which was sold, and passed by veterinary surgeon as sound, who distinctly believed that the horse was not a shiverer on the day he saw it. It was, however, rejected as such on being put to work. Three months later another veterinary surgeon saw the horse and also pronounced it sound. Eventually the animal found its way back again to a dealer in the town from which it was first sold, who, on discovering its condition, refused to sell it to a client who wanted to purchase it. Evidently that horse must have been an intermittent shiverer.

Mr. SAVOURNIN said he generally passed his fingers with as much force as possible along the spine to discover whether the animal had "jinked back." What was meant by that term he did not know, but he knew the symptoms, and if they were there, he was able to say that that the animal had "jinked back" and was not at the moment sound. When pressure was applied to the horse's back, in bad cases the horse would give way and crouch down, almost like a dog going to be whipped, while in slight cases the horse only flinched.

Major BUTLER said the symptoms he had just heard described as "jink back" was a condition which was normal in many horses. Such horses went on working from year's end to year's end without giving any sign of being unable to perform their work. There were horses which when mounted would crouch in the most extraordinary way, especially in moments of excitement, and occasionally race horses would crouch to such an extent as to give the idea there was something wrong with their back, until they started moving. Arab horses appeared particularly tender, and if pinched over the back would sometimes "give" to such pressure in an exaggerated way, but it was a perfectly normal condition or at any rate not associated with weakness of the part, and seemed to be more easily induced in hot countries than cold ones.

Mr. PERRYMAN said it was common knowledge with cart horse owners that "jinked back" existed. He himself recognised a "jinked back" horse as one which when turning over did not raise the limbs from the ground, but simply rolled from side to side. In walking the animal had a rolling gait, and when backed came down on his hocks. There was a want of co-ordination, and, undoubtedly, some form of paralysis.

Mr. A. WILSON agreed with Major Butler that Arab horses were abnormally tender in their backs. With regard to Mr. Routledge's specimen, it would be interesting to know whether an aneurysmal varix really existed, particularly as he said there was a peculiar thrill in connection with it. It recalled to him a case he examined once in Edinburgh some years ago, a bull that had aneurysmal varix affecting the testicles, and he well recollected the peculiar sensation imparted to the fingers in examining that animal.

Prof. MACQUEEN said the questions he had been asked would require too long a story to answer. Mr. Perryman seemed to hold an exceptional view of the definition of paralysis. With regard to "jinked back" he did not think there was a satisfactory solution of the term, it appealed differently to different men, but he had yet to meet with a horse similar to that described by Mr. Perryman, for during the whole course of his practice amongst horses he had never met with a horse which came down upon its hocks when backed without that horse showing other definite symptoms. He thought Mr. Perryman would very quickly discover that symptoms of shivering might be regarded as a form of paralysis. A "jinked back" horse was a horse that to all appearance was healthy and sound so far as one could judge by looking at it when standing still or moving at a slow pace. Putting a man on the horse's back, and giving it a canter—he did not say it explained every case of "jinked back—the horse would canter for a mile or two, and then would gradually settle down, losing power in its hind quarters, sitting down like a dog with its fore feet stretched out. The horse was not blowing or sweating, or agitated, and the symptoms could not be confused with plugging of an iliac vessel or the aorta. There was no constitutional disturbance. The man who was riding probably need not shift his seat, and in five minutes or less the horse would rise of its own accord, and gallop again for another mile or so, when the same thing would happen. That was a "jinked back" horse, and an exceedingly rare condition. He had never seen those symptoms in a cart horse.

ELECTIONS AND NOMINATION.

The following gentlemen were balloted for and were unanimously elected:—Messrs. G. W. BLOXSOME, M.R.C.V.S., 15 D'Avigdor Road, Hove, Sussex; C.

ROBERTS, M.R.C.V.S., 8 Church Road, Tunbridge Wells; R. C. TENNANT, F.R.C.V.S., 54 Thames Street, Windsor; T. M. C. HUNT, M.R.C.V.S., Merecot, Cholsey, Berks.

Capt. J. J. GRIFFITHS, A.V.D., was nominated for election at the next meeting.

ELECTION OF DELEGATES.

On the motion of Mr. Slocock, seconded by Mr. Upton, it was agreed to send two delegates to the Congress of the Royal Sanitary Institute at Bristol, July 9th to 14th; and on the motion of Mr. Hunting, seconded by Mr. Stroud, the Council were requested to pay the expenses of the delegates, not exceeding four guineas each.

The President, Mr. A. L. Butters, and the Secretary, Mr. Hugh A. MacCormack, were unanimously appointed delegates.

Mr. W. HUNTING moved that one delegate should be sent to the Congress of the Royal Institute of Public Health at Cork, June 28th to July 3rd, and his expenses, not exceeding ten guineas, paid by the Society.

Mr. ROGER CLARKE seconded the motion.

Prof. MACQUEEN proposed as an amendment, that a delegate be not sent this year to the Royal Institute of Public Health. He felt that nothing of value was obtained from either of the Institutes, and that it was only an outing for some of the selected members. If the Congress was being held in Dover, or anywhere within reach it might be a good thing, but Cork was too far away, and too expensive.

Mr. HUNTING said the idea of asking what the profession obtained by attending such meetings was too dreadful. For years and years veterinary surgeons neglected everything in the way of municipal government, and public hygiene, and sanitation, and it was only within the last few years, since they had attended the meetings, that any good had been done with municipalities. If Prof. Macqueen's advice was followed it would be better to shut up everything at once.

Mr. SAVOURNIN seconded the amendment, believing that nothing was to be lost by omitting to send a delegate on this one occasion.

Mr. HOWARD, who was Secretary of the Veterinary Section of the Public Health Institute, last year, at the London Congress, thought the veterinary surgeons working in Ireland ought to be encouraged. It was discouraging after all the work to see no one at the meeting to listen to the papers.

Replying to Mr. Upton, the President said other Societies would be represented.

The amendment on being put was lost, and the original motion was carried.

Mr. Howard was unanimously appointed a delegate.

MAJOR BUTLER'S RESOLUTION—DISCUSSION.

Mr. SAVOURNIN said quite a large number of professions and trades were taxed by Government or Local Authorities, and the medical profession and the veterinary profession were about the only professions that had so far escaped. Whether it would be wise to draw the attention of the authorities to that point or not was a question for discussion; he thought not. The imposition of a fee would have to be done by an Act of Parliament or by a Charter. It would be a good thing for the College to have a little money to play with, and would relieve them from that ignoble position which Major Butler had pictured of having to live on the students. Game dealers, brewers, patent medicine vendors, had to pay extra taxes, under the name of licenses, as did pawnbrokers, valuers and auctioneers, and indeed very few professions had escaped. He thought, perhaps, a guinea a year would be too much, and it might be brought down to half a guinea, which there should be no difficulty in raising, having regard to the fact that the members of the profession were able to pay their subscriptions to their Societies and to their professional papers.

Prof. PRITCHARD considered that Mr. Savournin had mixed up the payment of a profession with ordinary licenses. If there was no precedent he did not see why the veterinary profession should initiate one.

Mr. SAVOURNIN said the proposed levy was of the nature of a tax or license to practise, and would have to be imposed by an Act of Parliament, or a new Charter, which would give legal power to the College to register members annually upon payment of a fee, as was now done in the legal profession, and in connection with auctioneers, actuaries, appraisers and valuers. A license was only a tax.

Mr. W. HUNTING thought that Major Butler had made out a fairly good case, but had not said anything of the advantages which would accrue to the Royal College if they had a thousand or fifteen hundred pounds a year coming in. He reminded Prof. Pritchard that there was one very good precedent in the Pharmaceutical Society, a young chartered body that had a provision for the payment of a guinea per annum. There was a great difference between the licences spoken of by Mr. Savournin and the present proposal, in that the former parted with the money and did not have the handling of it, whereas the subscription proposed would be handled by the Profession itself. There were really some advantages. The payment of a small sum every year would make some practitioners less apathetic; they would recollect at least once in the year, that there was such a place as the Royal College of Veterinary Surgeons, and that it was a collective body. Some good might be done in other ways. The money might be used partly for the benefit of the museum of the College. It was a reproach to the profession that with such facilities for post mortems the collection of pathological specimens in the museum should be so valueless. There was also the Library of the College which might be made useful and important, instead of now being a place for the deposit of hats and coats. Of course the Council was an examining body, but it might do something in encouraging graduates by means of scholarships. It was no good giving a man a £7 or £10 prize, that was only waste of money; but if the College was in a position to give a man board, lodging, and clothing, while he did some work for the profession that would be doing good. When a man left College he was obliged to seek remunerative work, and could not afford to go in for research or study, but if the College could give him an opportunity of spending a year wherever he liked, with some guarantee—and the best guarantee would be the man's desire to do some work—a scholarship of £100 or something of that sort would be of great benefit.

There were also great difficulties. A voluntary collection of money was out of the question, and a compulsory collection raised the point as to whether it would apply to all members, or only to the new members. He doubted whether men who had paid for their diploma could be made now to pay an annual subscription, but if there was only a small annual fee of half a guinea he thought nobody would object to a Charter giving such powers. A very slight objection would upset the whole thing, but if the Veterinary Societies could arrive at unaniminity about it so that a Charter or Act of Parliament could be obtained without opposition, something might be done.

Mr. UPTON thought the proposal was a very good one, because he had grave doubts as to where the profession was going to be in the course of the next half century. The increase in the educational system was not going to bring in more students, and therefore money, to the Royal College of Veterinary Surgeons. There were not wanting people who prophesied that about the year

1950 the veterinary profession would have collapsed, but he thought the Royal College of Veterinary Surgeons would collapse in 1925 if they did not receive some aid from the profession. The half a guinea subscription would be money well laid out. With regard to what was to be done with the money, perhaps something might be done in the way of checking motor cars, and it might be possible to spend some of it in assisting the widows and orphans of deceased professional brethren. He did not think it would be at all difficult to spend the money if it was raised. He endorsed all that Major Butler had said, and he hoped the whole profession would have an opportunity of considering the resolution.

Mr. WALL thought a tax would be of assistance in putting down quackery, of which the profession would have to face a great deal, having regard to the fact of the veterinary courses at the different universities. In the United States very stern measures had been taken, and an unqualified man acting as a veterinary surgeon was heavily fined.

Prof. MACQUEEN said he had seconded the proposition for the purpose of having it discussed, and agreed with almost every remark Major Butler had made. He was not quite sure how the money was to be collected. The veterinary profession were not very reliable with regard to voluntary contributions. They were very good for subscriptions in the case of necessity, and not bad in the case of admiration, when somebody had to be testimonialised, and were not at all out of sorts when there was anything to be eaten, but when it came to a yearly subscription for something which was only in the air, he was afraid some stronger inducement would have to be offered than the remote contingency of Mr. Upton's crash in 1925. When the profession was polled on the point he was afraid the majority would be found inclined to refuse a voluntary subscription. He should like to see an annual registration fee, and he could not understand why the members of the Council never introduced an annual Registration Fee even before the passing of the 1881 Act.

Mr. W. HUNTING suggested that a letter should be sent to other Veterinary Societies inviting them to discuss the matter.

Mr. PRITCHARD seconded the motion.

Prof. MACQUEEN agreed with Mr. Hunting's suggestion and believed it would be of value. Major Butler's speech and a portion of the discussion should be printed also and sent with a circular letter to each of the Societies.

Major BUTLER congratulated himself on the enthusiastic support he had received. Two months ago when the matter was first mooted he received a letter from someone who said he thought it would be a good thing, and an article was written in one of the professional papers to the same effect, since which time the only note of direct opposition was the one received that evening from Mr. Coleman, who had, however, given no reason for that opposition. With regard to the collection, he believed the only way of collecting an annual registration fee would be by Act of Parliament, and supposing any member to be in default it would be necessary to have the power of taking his name off the rolls altogether until he paid up. That was the manner in which the tax was collected from the lawyer, who was the only professional man, he believed, who did pay a tax collected by the authority of Government. He thought Mr. Savournin had mixed up the collection of such a fee with the license which it was necessary for tradesmen to hold. In the latter case, as Mr. Hunting had so admirably explained, the money was devoted by Government to purposes not in connection with the business from which it was collected, but as regards ourselves the annual subscription would be applied to the purposes of the profession. No compulsion could be put upon the profession; if they did not offer themselves, voluntarily, to undertake such a burden it could not be forced on them. Prof. Pritchard had asked for a precedent; there was none. He was sure, however, that Professor Pritchard was the last man to object to taking the initiative. If we agreed it was a good idea, it must be put to the profession as a whole, and they must agree it was a good thing before anything could be done. Mr. Hunting had pointed out that the collection of a small fee would get rid of a proportion of the apathy from which the profession occasionally suffered, and that the money might be used in the library and museum and for the purpose of a scholarship for a year. He went further than Mr. Hunting, and would, if funds permitted, give selected men board and lodging for an unlimited time if they produced good work. In the veterinary colleges abroad there were men working for very small sums per annum at their own particular subjects, men who would rather do that than earn a lot of money in general practice. In this country such a man with a love for research had no chance whatever. The only persons in this country who were earning money out of general practice were the teachers in the schools. It might happen of course that a man who wished to do some work of his own took up teaching in order to get the opportunity to do the work, but that was his only way. There were, of course, many difficulties in the way of the scheme, but he did not see why they should not be overcome. One difficulty was to get a suitable Act of Parliament, and there were many who said it could not be done. It could not be done unless all were agreed to persuade Parliament it was a good thing to do, and then they would do it. He had taken legal opinion on the matter and found there was no reason why Acts of Parliament should not be retrospective in the sense that this would have to be, and they sometimes were. It was quite evident to him that a large number of the Fellows thought that an income was necessary, and that was the main point. How it was to be spent might be left till the time came when the money was in hand, and that was the one point which presented no difficulty. Nothing could be done, however, if the profession was apathetic in the matter, and unless the members were prepared to help the matter forward by discussing it with their friends, and in other societies, and getting the opinion of the profession upon it, nothing would be done in the present generation.

The resolution was then put and carried unanimously.

Mr. HUNTING's resolution, seconded by Prof. Pritchard, that the resolution, accompanied by a copy of the discussion, and of Major Butler's paper be sent to the various Societies asking for their opinion, was also carried unanimously.

A vote of thanks was accorded to those who had exhibited post-mortem specimens, and a vote of thanks to the Chairman terminated the meeting.

HUGH A. MACCORMACK, *Hon. Sec.*

Forage for Dairy Cows.

"J. J. D. J." writing to *The Live Stock Journal* says: "Grass in summer and hay in winter were considered good enough by our forefathers for their dairy cows, but science, analysis, improved means of communication, and the introduction of many useful vegetables, formerly unheard of, have made it necessary for us to benefit by the experiments of our neighbours across the Channel if we would hold our own against foreign competition. It is difficult to assign its place in the list to meadow grass, which may mean anything from the knee-deep herbage of the Vale of Aylesbury to the fells of Westmoreland, incapable of keeping one goose to the acre. But of leguminous crops results place in order of merit for dairy forage clover, sainfoin, lucerne, and

vetches. Experiments show that gramineous plants in a green state are more productive of butter than when dried, and give the best results when cut at the beginning of their flowering.

Maize is found to be a failure for dairy forage as productive neither of much milk nor much butter.

White mustard appears to increase the quantity of milk, but at the expense of its quality, as it keeps badly, and the butter very soon becomes rancid.

As most English farmers already know, cabbages, especially the drumhead, are most useful, and a good plan is to prick in an early and late variety alternately, so that when the former is removed the latter may have room to swell, and in France, where so much beetroot is cultivated, they are found to excel the latter, both in producing milk and fatty matter.

Our French neighbours, making use of several vegetables, little known to us, on a large scale, have discovered that garlic, ensilaged maize, and Jerusalem artichokes impart a disagreeable taste both to milk and butter, whereas, on the other hand, parsley, thyme, parsnips. and carrots give to butter a pleasing perfume.

Oats and beans are found to be inferior to bran and oilcake. Roots and tubers are generally favourable for the production of milk, but the large proportion of water of which they are composed render them but little nutritive, and, as with turnip or beetroot tops, some dry food more concentrated, such as oilcake, must be added.

For milk getting the potato is inferior to beetroot, and with tubers generally a slight excess of milk is gained at the loss of caseine and of butter. The roots most to be remmended as well as the most liked by milch cows are parsnips and carrots, but, unfortunately, both are generally too expensive to grow on a large scale; still, for cows as well as for horses, a small quantity is better than none at all. Swede turnips impart a disagreeable flavour, which, however, disappears to a great extent in cooking.

Improved machinery and more ready means of communication have brought within our reach many concentrated foods in the form of cakes unknown to our ancestors, which are rich in fat-producing matter, and counteract the effect of too many watery roots. Four pounds of oilcake per beast per day has been found to have the best effect. Of all cakes—and their modern name is legion—the best is still found to be the old-fashioned decorticated cotton cake, being more rich than linseed cake and lower in price. Both in producing milk and butter it is proved to beat linseed cake. Cocoanut cake has little effect on milk, but makes the butter more firm, but readily goes bad if stored in a damp place. That we have little experience of colza cake in England need not be regretted, since it is far inferior in results to our decorticated cotton cake, and gives a bad taste to the butter. We are scarcely likely to use cake of sesame, which is inferior to linseed cake, still less to use cake made of garden pinks. Sesame cake costs more than cotton cake, produces moderate milk, a cream hard to churn, and soft, white, and poor butter. Decorticated earth nuts, flour of cotton, and cocoa need only be mentioned to be dismissed summarily.

Bran of wheat is one of the best of our foods, and, like cake, induces animals to drink freely, and two or three pounds a day will benefit each milch cow and more

DISEASES OF ANIMALS ACTS 1894 TO 1903. SUMMARY OF RETURNS.

Period.		Anthrax.		Foot-and-Mouth Disease.		Glanders (including Farcy)		Rabies. Cases Confirmed.		Sheep Scab.	Swine Fever.	
		Out-breaks	Ani-mals.	Out-breaks	Ani-mals.	Out-breaks	Ani-mals.	Dogs.	Other	Out-breaks	Out-breaks.	Slaughtered *
GT. BRITAIN. Week ended May 26		33	37			30	46			2	31	143
Corresponding week in	1905 ..	20	24			29	57			2	25	111
	1904 ..	34	59			39	65			7	58	282
	1903 ..	18	29			31	43			11	35	206
Total for 21 weeks, 1906		430	652			456	862			278	505	2581
Corresponding period in	1905 ..	446	638			499	903			631	317	1510
	1904 ..	456	721			608	1118			1034	587	3122
	1903 ..	346	528			532	869			1126	626	2987
IRELAND. Week ended May 19		..	..	..	..	..	..	..	..	3	4	29
Corresponding Week in	1905 ..	..	..	..	..	..	..	..	..	..	..	3
	1904 ..	..	..	..	..	..	..	..	..	2	1	112
	1903 ..	..	..	..	..	..	..	..	..	..	3	58
Total for 20 weeks, 1906		2	2	..	..	2	8	..	..	136	28	415
Corresponding period in	1905 ..	2	2	..	..	9	25	..	..	213	26	312
	1904 ..	2	2	..	..	3	18	..	..	351	75	1216
	1903 ..	..	..	..	..	1	2	..	..	376	65	1051

Board of Agriculture and Fisheries, May 29, 1906.

Epizootic Lymphangitis: Week ending Jan. 27, 1906, 1 case.

Department of Agriculture and Technical Instruction for Ireland, (Castle Street), Dublin, May 24, 1906.

NOTE.—The figures for the Current Year are approximate only. * As Diseased or Exposed to Infection.

than repay its cost, and though if either had to be given singly the French prefer the cottoncake, a mixture of the two is most to be recommended.

"Radicelles," or the sprouts of malted barley, are better for the dairy purpose than for feeding, and the butter obtained from this residuum of the brewery is firm, excellent, and keeps well. Brewers' grains, however good for feeding purposes, will not bear comparison with beetroot for dairy purposes, for though the milk may be equal in quantity, it will be deficient in fatty matter.

We may hope that the time is not far distant when we may grow our own sugar in the form of beetroot, as is done on such a huge scale in France, but until that time it would be premature to deal with the residuum of sugar factories, or beetroot pulp.

The above is the general effect of the important communication made by Mr. Malpeaux to the French International Dairy Congress, although he modestly states that it is but a small part of what might be written on the formation and quality of milk. His idea is, of course, to give a general information as to what system of feeding is to be generally preferred, though, of course each cow-keeper has to be guided by what he can most cheaply produce or procure, by soil, climate, means of carriage, and so on.

Digestion in the Cow.

Experiments have recently been carried out in the Milan School by mixing easily recognisable substances with the food in order to determine the length of digestion in the cow and the results show a wonderful uniformity, for in the four experimental cows, the substances appeared in the fæces 13 hours after administration in 3 and 8 in land could be recognised in the fæces for 8 days, 19 hours; 7: 19; 10: 13; and 10 : 1 after.—*La Clin. Vet.*

Presentation to a V. S.

The members of the Halstead Club have just shown in tangible fashion their appreciation of the services of their hon. secretary, Mr. F. M. Wallis, who has discharged the duties of that position with the greatest acceptance ever since the club was established ten years ago. The presentation, which was subscribed to with the utmost heartiness by all, took the form of a silver rose bowl, of artistic design, and this was handed to Mr. Wallis at a complimentary dinner held at the club rooms on Wednesday evening last. About thirty members attended, Mr. Vero W. Taylor, J.P., kindly coming over from Hedingham to take the chair, and Mr. Reuben Hunt, J.P., of Earls Colne, another old friend of Mr. Wallis's, was likewise present. Dinner was very satisfactorily provided by Mr. Goodson, of the White Hart Hotel. After the loyal toast had been duly honoured, Mr. Taylor proposed the health of their guest and asked Mr. Wallis's acceptance of the gift, speaking in highly eulogistic terms of the services that gentleman has rendered, and of the great energy and assiduity displayed by him, in consequence of which it has largely been that the club has prospered so well and is so much appreciated by all connected with it. The vase, which had been filled with beautiful roses, was then uncovered and was greatly admired. It bears an appropriate inscription. Mr. Wallis upon rising was warmly applauded, and acknowledged the kindness of his fellow members in a few graceful words, assuring them that he would look upon their gift as one of his most cherished possessions. A few remarks were afterwards made by Mr. H. G. Cobb, who had had most to do with getting up the presentation, saying he had never known people subscribe so readily to anything as they had done to this.—*Essex and Halstead Times.*

Personal.

PETTIFER.—On May 26th, at "The Limes," Tetbury, Gloucestershire, the wife of T. Valentine Pettifer, F.R.C.V.S., a son.

OBITUARY.

ALEXANDER CURTIS COPE, M.R.C.V.S.: Hon. Mem. R.A.S.E., Iverna Court, Kensington.
Graduated, Lond: April, 1858.

Mr. Cope died at his residence, on Tuesday, 29th May, aged 66 years. The funeral was at Brompton Cemetery on Thursday.

ROWLAND TAYLER, M.R.C.V.S., Colchester.
Lond: April, 1862.

The death took place at Colchester on Sunday, in his 83rd year, of Mr. Rowland C. Tayler, well known during the last fifty years as one of the leading veterinary surgeons in the Eastern Counties. The deceased gentleman came of a good old Essex family, and was a descendant of the Dr. Rowland Tayler, rector of Hadleigh, who was martyred at that town in 1555, during the reign of Queen Mary. Mr. Tayler, who was born in 1824, came to Colchester in 1839, as pupil to Mr. William Cross, then practising as a veterinary surgeon in High Street. Subsequently, after himself carrying on a practice for some years. Mr. Rowland Tayler took his degree at the Royal College of Veterinary Surgeons, and his thorough knowledge of his profession acquired for him an excellent connection, both in military and civilian circles. He ceased practising in 1898, and having transferred the business to his only son (Mr. R. C. Tayler, of Queen Street, Colchester), he went to reside at Hay Farm, Fingringhoe. For some time past he had shown signs of decline, and he passed peacefully and painlessly away on Sunday at his son's house, from senile decay.

By his death, East Anglia loses one of the best of old-time sportsmen, and the Essex and Suffolk Hunt one of its most devoted and earliest supporters; he was always to be seen in the first flight, and certainly few worked harder in the interests of the Hunt. Mr. Rowland Tayler's was a well known and ever welcome figure at local agricultural shows, where he was a constant and most successful exhibitor. On several occasions he was referee to the Shire Horse Society and the Hackney Horse Society at the Royal Agricultural Hall; and he was one of the chief promoters of the successful steeplechasers that were held at Middlewick some few years ago, when he rode many winners. He was a fearless and most expert horseman, and on one occasion he rode a horse under a horizontal bar, and then jumped him over it—thus winning a substantial wager. He was out hunting as recently as three years ago, though then in his eightieth year. He was a great preserver of foxes, and nothing gave him greater pleasure than to rear a good litter of cubs, whilst members of the Hunt were always welcomed heartily at his Fingringhoe homestead. He also took a very great interest in coursing, and was, in fact, a thorough all-round sportsman. He was twice married, his first wife being the daughter of Mr. Henry John May, of West Mersea. His second wife was Mrs. Cross, widow of the late Mr. William Cross. He leaves one son and three daughters. Of the latter, one married Mr. Watson, of Newmarket (trainer to Mr. Leopold Rothschild), whilst another is the wife of Mr. Shipley, veterinary surgeon, Yarmouth; and the third married Mr. Boreham, of Higham. The late Mr. Rowland Tayler was a Conservative and a Churchman, but he took little active interest in politics. He was a member of the "Angel" Lodge of Freemasons (No. 51, Colchester). The funeral took place on Wednesday at the church of All Saints, Colchester.—*The East Anglian Daily Times.*

WHEATLEY.—On the 28th May, at "Downs," Bath Road, Reading, Margaret Elizabeth, wife of Albert Wheatley, F.R.C.V.S. Funeral Tuesday, 29th May, Reading Cemetery.

SIR JOHN M'FADYEAN TESTIMONIAL.

Mr. Thomas Parker	10/6	Mr. Augustus Miller	21/-
Arnold Richardson	10/6	W. Littlewood	21/-
J. W. Pritchard	10/6	Roger Clark	10/6
Capt. J. D. Holmes	21/-		

CORRESPONDENCE.

Re AN ELECTION ADDRESS.

Sir,

In your current issue, you publish a long election address from Mr. H. Sumner. I do not by any means fall in with *all* the views that gentleman has expressed, but there is one paragraph in his address with which I am in such strong agreement as to wish to call further attention to it. I refer to Mr. Sumner's opinion that it is desirable that the profession should have more knowledge than is the case at present of the doings of the Registration Committee—not knowledge of the identity of the offenders, but of the nature of the offences.

Like Mr. Sumner, I do not enter at all into the question of whether the Registration Committee does its work well or ill. But I do say that more light should be thrown upon that work. At present, beyond a couple of bye-laws, we have really very little opportunity of knowing what our legislators—who may at any time be our judges—would be disposed to regard as "conduct disgraceful in a professional respect." All we know is that some *scores* of cases annually are considered by the Registration Committee, and that every now and then the name of some qualified or registered practitioner is struck off the Register—and even then we do not always know what he has done to deserve it.

There is another point with regard to those extreme cases in which it is decided to remove a name from the Register—and a rather curious point, too. There is a bye-law which *directs*, clearly and expressly, that when any man has been struck off the Register for "disgraceful conduct," after "entering a defence," then a *full report* of both charge and defence shall be published in the professional journals within three months.

I have yet to learn that that bye-law has ever once been obeyed, and certainly, unless the Council choose to delete it altogether, it should be obeyed.

If Mr. Sumner is elected to the Council—which, judging from his last year's poll, seems a very likely event—it is possible that he may attempt to induce his colleagues to remove some of the secrecy which has always been an attribute of the Registration Committee. If he does attempt it, there is one point worthy of the consideration of Councilmen. The Registration Committee has never been exactly popular, and it would be easy to find men who openly avow their distrust and dislike of it. And, certainly, the absolute mystery which hangs over its proceedings must tend to strengthen the suspicions of those who doubt, and the assertions of those who deny, the justice of its decisions.—Yours faithfully,

"CATO."

BREECH PRESENTATION.

Sir,

If I find there is going to be any difficulty in getting the hind legs up, I rope either the hocks or thighs as may be most expedient, as described by "Country Practitioner" and always deliver with success and satisfaction.

Some years ago an Irish cattle dealer asked me to calve a cow. I saw the calf was on its back with the hind feet sticking out. I said it looked like being an awkward job, I must have half a guinea before I start (this class of people being very slippery.) The money was paid. I said now Pat get a stout piece of cord and firmly tie the pasterns together, which was done; now get a strong piece of wood about 5ft. long (a pikel stale was used in this case.) Now put that between the legs and twist the calf round into its proper position, not using too much force or you will break the legs. The calf was soon turned into its natural position and the rest was easy sailing. "Och!" says Pat, "It's a mighty clever trick; it's the first time I ever saw a man calve a cow with his coat on. Shure, you earn your money very easy, but I have learnt a great lesson."

A V.S. from the country was telling me one day what a tussel he had had in foaling a mare. The foal was on its back and the hind legs poking out. It took him three hours to cut the foal up and effect delivery. "Three hours" says I, "Why I could have got that foal away without taking my coat off." "What nonsense you talk," says Mr. V.S., "I have been foaling mares for many years and know what what is, you must be joking." "Joking or not," says I, "it's a fact." He got ruffled, and seemed inclined to laugh me to scorn. I was thinking of leaving it as an apparent joke, but he sobered down, and asked me my *modus operandi*, which I told him. "Well," he said, "it seems feasible and I will try it the next case I have, but I shall take my coat off." I have not seen that V.S. since.

A little common sense goes a long way in calving.

JONAS.

SALE OF MEDICINES.

Sir,

If "M.R.C.V.S." had to write his letters in pencil at the same time trudging through country lanes to attend cases of parturition and other non-paying work, he would not have much time to study grammatical errors. He would only be too glad to rest at home and sell a few colic drinks to keep things going. Now such men as "M.R.C.V.S." are too thick on the ground in our Council Chamber. What we want is a representative class of men who will study the interests of country practitioners, and above all will not deprive them of their right to sell medicines. Let me impress upon "M.R.C.V.S." that a V.S. may be a good "castrator and obstetrician" with a sense of the "eternal fitness of things," but if he is deprived of the sale of medicines through illegitimate channels a lean living will be the result.—Yours etc., W. H. S.

Sir,

I think both castration and obstetrics and *the sale of medicine* should be well looked after in every practice with "go" in it. But if it comes to neglecting sources of income then the astute neglector will neglect those where the labour is most and the lucre least. That seems to me logical and reasonable even if it isn't very far-seeing. The poser that "M.R.C.V.S." puts in italics is easily answerable by any man with a sense of "the eternal fitness of things."

The question as propounded by "M.R.C.V.S." is "whatever is the difference between a veterinary surgeon who sells medicines in quantities to be used in the treatment of cases he does not see, and the so-called quack medicine vendor?" The difference is simply this (and it is one which "*M.R.C.V.S.*" ought to appreciate) that in the one case a man who has *no locus standi whatever* is treating a case which he couldn't diagnose even if he saw it, a man who knows nothing probably of either the action of drugs or the anatomy of an animal's vitals; and in the other case a qualified man is prescribing who from long knowledge and experience both of drugs and ailments in animals knows that he is compounding and disposing of something that in perhaps 90 per cent. of cases does good, and in the 10 per cent. does very little harm. In the one case the harm done may be irreparable, in the other it is probably infinitesimal for a veterinary surgeon who cannot compound an excellent general colic drink doesn't know much about either his business or present day drugs.—Yours truly,

"MAGI."

COMMUNICATIONS AND PAPERS RECEIVED—Messrs. E. Wallis Hoare, H. A. Stewart, W. A. Field. W. H. S. "Jonas." "Magi," "Cato."

Civil and Military Gazette (Lahore), *Times of India*, *The Cork Examiner*, *East Anglian Daily Times*. *The Majority.*